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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

MAILED

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GROUP 3700

Application Number: 09/965,162
Filing Date: September 27, 2001
Appellant(s): HOFFMAN, STEVE E.

Steve E. Hoffman
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on 12/13/06 appealing from the Office action mailed 08/16/05.

1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,802,932	VANKOV et al.	09-1998
5,477,616	WILLIAMS et al.	12-1995
5,873,770	HASHIMOTO	02-1999

5,555,788

GAKHAR et al.

09-1996

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A. Claims 1, 2, 6, 13, 14, and 18 stand rejected under 35 U.S.C. 102(b) as being unpatentable over Vankov et al. (5,802,932), hereinafter Vankov. The device of Vankov discloses the invention as claimed, including, *inter alia*, a straight blade portion with a plurality of teeth and two opposed sides which define a blade portion width, having a surface finish which is less than approximately 10 Ra (col. 5, lines 56-61; col. 6, lines 14-18, col. 10, lines 33-45), having a surface finish which is approximately 6 Ra or less (col. 6, lines 14-18), the sides of the teeth having a surface finish less than 10 Ra and less than 6 Ra (col. 5, line 65 through col. 6, line 3), a cutting edge and teeth having a cutting tips width that are substantially the same as the blade portion width. Vankov also teaches that the high precision surface finishing process inherently reduces residual tensile stress of the saw blade, since the surface finishing process inherently reduces the residual tensile stress of the blade portion by removing part of the cutting edge or sharpening the cutting edge. In addition, Vankov's surface finishing process that produces surface roughness less than 10 Ra for the saw blade inherently reduces the residual tensile stress of the saw blade. Because, the surface finishing process of the instant application, which produces the same surface roughness for saw blade as Vankov's surface finishing process, reduces the residual tensile stress of the saw blade. With respect to the surface finishing process for obtaining a saw blade with surface roughness of less than or equal to 10 Ra or 6 Ra as

set forth in claims 1, 13, and 19, "If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the product of prior art was made by a different process." In re Thorpe, 777 F.2d 695,698, 277 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113. In view of this, similar to the process of the instant application, Vankov's process is also a polishing process as the surface finishing process of the instant invention and it is which is used to produce a high precision surface finish with less than 10 Ra or 6 Ra for two opposed sides of a blade.

B. Claims 20, 21, 25, 26, 27, and 31 stand rejected under 35 U.S.C. 102(b) as being unpatentable over Vankov. The device of Vankov discloses the invention as claimed, including, inter alia, a straight blade portion with a plurality of teeth and two opposed sides which define a blade portion width, having a surface finish which is less than approximately 10 Ra (col. 5, lines 56-61; col. 6, lines 14-18, col. 10, lines 33-45), having a surface finish which is approximately 6 Ra or less (col. 6, lines 14-18), the sides of the teeth having a surface finish less than 10 Ra and less than 6 Ra (col. 5, line 65 through col. 6, line 3), a cutting edge and teeth having a cutting tips width that are substantially the same as the blade portion width. With respect to the surface finishing process for obtaining a surface finish of less than or equal to 10 Ra or 6 Ra as set forth in claims 20, and 26, "If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the product of prior product was made by a different process." In re Thorpe, 777 F.2d 695,698, 277 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113. In view of this, similar to the process of the

instant application, Vankov's process also is a polishing process as the surface finishing process of the instant invention and it is used to produce a high precision surface finish with less than 10 Ra or 6 Ra for two opposed sides of a blade.

C. Claims 1, 2, 6, 13, 14, and 18 stand rejected under 35 U.S.C. 102(b) as being unpatentable over Williams et al. (5,477,616) hereinafter Williams. Regarding claims 1, 2, 6, 13, 14, 18, and 19, Williams teaches an improved saw blade including a blade portion having two opposed sides which define a blade width and a cutting edge 5 formed on the blade portion. Williams also teaches that the cutting edge has a cutting tip width. The blank of the knife 2 is defined as a cutting portion. Williams also teaches that the blade has a high precision surface finish which is less than or equal to approximately 10 Ra. The blank or the blade portion of the knife has a high precision surface in a range of 0.1 Ra to 2.0 Ra, which is less than 10 Ra or 6 Ra. See Figs. 1-2 and col. 2, lines 50-67 and col. 4, lines 50-67 in Williams. Williams also teaches that the high precision surface finishing process inherently reduces residual tensile stress of the saw blade, since it produces a harder cutting edge for the blade and improves the cutting performance of the blade. In addition, Williams' surface finishing process that produces surface roughness less than 10 Ra for the saw blade inherently reduces the residual tensile stress of the saw blade. Because, the surface finishing process of the instant application, which produces the same surface roughness for saw blade as Williams' surface finishing process, reduces the residual tensile stress of the saw blade. With respect to the surface finishing process for obtaining a saw blade with surface roughness of less than or equal to 10 Ra or 6 Ra as set forth in claims 1, 13, and 19, "If the product in the product-by-process claim is the

same as or obvious from a product of the prior art, the claim is unpatentable even though the product of prior art was made by a different process." In re Thorpe, 777 F.2d 695,698, 277 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113. In view of this, similar to the process of the instant application, Williams' process also includes a polishing or grinding process as the surface finishing process of the instant invention and is used to produce a high precision surface finish with less than 10 Ra or 6 Ra for two opposed sides of a blade.

D. Claims 20, 21, 25, 26, 27, and 31 stand rejected under 35 U.S.C. 102(b) as being unpatentable over Williams et al. (5,477,616) hereinafter Williams. Regarding claims 20, 21, 25, 26, 27, and 31, Williams teaches an improved saw blade including a blade portion having two opposed sides which define a blade width and a cutting edge 5 formed on the blade portion. Williams also teaches that the cutting edge has a cutting tip width. The blank of the knife 2 is defined as a cutting portion. Williams also teaches that the blade has a high precision surface finish which is less than or equal to approximately 10 Ra. The bank or the blade portion of the knife has a high precision surface in a range of 0.1 Ra to 2.0 Ra, which is less than 10 Ra or 6 Ra. See Figs. 1-2 and col. 2, lines 50-67 and col. 4, lines 50-67 in Williams. With respect to the surface finishing process for obtaining a saw blade with surface roughness of less than or equal to 10 Ra or 6 Ra as set forth in claims 20 and 26, "If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the product of prior art was made by a different process." In re Thorpe, 777 F.2d 695,698, 277 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113. In view of this, similar to the process of the instant

application, Williams' process also includes a polishing or grinding process as the surface finishing process of the instant invention and is used to produce a high precision surface finish with less than 10 Ra or 6 Ra for two opposed sides of a blade.

To the degree that it could be argued that Vankov or Williams does not teach that the surface finishing process inherently reduces residual stress of the blade portion, the rejection under 35 U.S.C. below is applied.

E. Claims 1, 2, 4-6, 13, 14, 1-21 22-27, and 29-31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Vankov or Williams and in further view of Hashimoto (5,873,770). Regarding claims 1, 2, 6, 13, 14, 18, 20, 21, 25, 26, 27, and 31, Vankov or Williams teaches the invention as claimed, including, *inter alia*, a straight blade portion with a plurality of teeth and two opposed sides which define a blade portion width, having a surface finish which is less than approximately 10 Ra, having a surface finish which is approximately 6 Ra or less, the sides of the teeth having a surface finish less than 10 Ra and less than 6 Ra, a cutting edge and teeth having a cutting tips width that are substantially the same as the blade portion width. See paragraphs 1-5 above.

Vankov or Williams does not teach a centrifugal finishing apparatus that produces a surface roughness of less than 10 Ra or less than 6 for the blade portion and reduces the residual tensile stress of the blade portion. However, the use of centrifugal apparatus for producing a high surface finish for the blade or the like and reducing the residual tensile stress of the blade is well known in the art such as taught by Hashimoto. Hashimoto teaches a vibratory finishing process which includes tumbling, rotating, spinning, or centrifugal processes, where one or more workpieces are placed in a container and

abrasive medial or abrading elements displace portions of the workpiece during the vibratory finishing process. See Col. 1, lines 15-24 in Hashimoto. Hashimoto also teaches that the workpiece could be a scissor or knife blade and other hardened steel parts. Hashimoto also teaches that the finishing process beings the exterior surface of the product between an arithmetic average roughness Ra of 10 to 20. See col. 5, lines 5-45 and col. 6, lines 10-67 in Hashimoto. Hashimoto also teaches the surface of the workpiece can be performed until a desired surface roughness is produced. It should be noted that Hashimoto's surface finishing process is the same as the surface finishing process of the instant application. Therefore, similar to the surface finishing process of the instant invention Hashimoto's surface finishing process must reduce the residual tensile stress of the blade portion. It should also be noted that the centrifugal process inherently includes inner and outer vessel such as the centrifugal process taught in Hoffman (5,355,638). In addition, as stated above, "If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the product of prior art was made by a different process." In re Thorpe, 777 F.2d 695,698, 277 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113. It would have been obvious to a person of ordinary skill in the art to provide Vankov's saw blade or Williams' saw blade with a surface finishing process as taught by Hashimoto in order to obtain a desired surface finish for the blade portion.

Regarding claims 4, 5, 14, 16, 17, 23, 24, 29, and 30, Vankov or Williams as modified above teaches everything noted above including that the high precision surface finish is in a range of approximately 2 Ra and 6 Ra or 2 Ra and 6 Ra. Williams teaches

that Ra is approximately 2 which is within both ranges mentioned above. In addition, Hashimoto teaches that the surface finishing process can produce a desired surface roughness. Therefore, it would have been obvious to a person of ordinary skill in the art to perform the surface finishing process until a desired surface roughness, i.e., within the ranges mentioned above, is produced.

F. Claims 3, 15, 22, and 28 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Vankov or Williams in view of Hashimoto, as applied to claims 1, 13, 19, 20, and 26, and in further view of Gakhbar et al. (5,555,788), hereinafter Gakhar. Regarding claims 3, 15, 22, and 28, Vankov or Williams as modified above teaches everything noted above, but Vankov or Williams as modified above does not expressly teach that the saw blade is a circular saw blade and includes an anti-kickback portion located circumferentially behind each cutting tip and wherein at least a portion of the anti-kickback portion has a high precision low friction surface finish. However, Vankov or Williams as modified by Hashimoto teaches that the surface finishing process can be performed on a blade having cutting teeth or any other hardened still parts. Gakhar teaches an anti-kickback portion coated with a low friction surface located behind each cutting tip (Fig. 43, item 14, col. 4, line 67, claim 3). It would have been obvious to one of ordinary skill in the art to perform the surface finishing process as taught by Vankov or Williams and modified by Hashimoto, on a similar blade having cutting tips such as a circular saw as taught by Gakhbar, since the surface finishing process, as taught by Vankov or Williams, and modified by Hashimoto could be performed on the blades having cutting tips.

(10) Response to Argument

Appellant's argument that surface finishing process disclosed by Vankov does not inherently reduce residual tensile stress is not persuasive. Firstly, the specification of the instant application recites, “[i]t has also been determined through testing that the precision polishing of the saw blade reduces and/or eliminates embrittlement in the blade.” See page 10, lines 2-4 in the specification. This is the only reference to reduction of embrittlement of the blade by precision polishing in the entire disclosure. However, appellant has linked the embrittlement reduction of the blade to reduction of residual tensile stress of blade surface, which has been recited in the amended claims on 05/10/04. Secondly, Vankov teaches a blade that has a high precision surface which is less than 10 Ra. Vankov explicitly does not disclose that the high precision surface finish has reduced embrittlement. However, Vankov teaches an electropolishing process of the blade that provides a high precision surface of less than 10 Ra. Electropolishing inherently reduces the surface roughness, friction, and impurity of the blade, improves resistance to corrosion, and removes H₂ hydrogen from the blade. It should be noted that when the surface of the blade is roughened the blade is inherently more brittle, since it is more susceptible to corrosion and hydrogen embrittlement. Electropolishing removes the roughened edges of the blade surface and removes the hydrogen from blade, which is made of a steel alloy, and consequently reduces the embrittlement of the blade. It also should be noted that embrittlement is a reduction in ductility due to physical or chemical changes, and the material with very little or no plastic deformation upon fracture is called brittle. Electropolishing of the blade surface removes the rough edges on the surface of the

blade are brittle. Therefore, as rough edges of surface of the blade are removed, the embrittlement of the surface of the blade is reduced.

In addition, the claims do not set forth relative to what amount of embrittlement or residual tensile stress the finished surface of the blade has reduced embrittlement or residual tensile stress. In other words, any amount below the maximum embrittlement or residual tensile stress of the blade could be considered as a reduced embrittlement or residual tensile stress for the finished surface of the blade.

Therefore, polishing process in Vankov may not be exactly the same as the polishing process in the instant application. However, Vankov's electropolishing process produces a substantially similar product as set forth in claims 1, 13, and 19. Vankov's electropolishing process produces a high precision surface for the blade portion having less than 10 Ra as set forth in claims 1, 13, and 19. Vankov's electropolishing process also reduces the embrittlement of the blade portion. In addition, according to MPEP § 2113, "If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695,698, 277 USPQ 964, 966 (Fed. Cir. 1985). In view of this, similar to the process of the instant application, Vankov's process is also a polishing process which is used to produce a high precision surface finish for two opposed sides of a blade. Furthermore, according to MPEP § 2113, rejection of product-by-process claims under 35 U.S.C. 102 is proper because "...when the prior art discloses a product which reasonably appears to be either identical with or only slightly different from a product claimed in a product-by-process claim, a rejection based alternatively on

either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith.¹ In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972)." Therefore, the rejection is proper.

Appellants' argument that "Williams introduces residual tensile stresses into the blade as a result of grinding a v-shaped cutting tip into the blade, so that the finishing blade of Williams cannot have the same reduced residual stress as the saw blade of the present invention" is not persuasive. Firstly, the appellant acknowledges that Williams finishing process reduces residual stress. Therefore, it meets the limitation in the independent claims. Secondly, as stated above, claims do not set forth the amount of reduction in embrittlement or residual tensile stress of the blade portion. Therefore, any decrease amount in embrittlement or residual tensile stress of the blade portion in Williams satisfies the limitation as set forth in the independent claims 1, 13, and 19. Thirdly, as set forth above, according to MPEP § 2113, "If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695,698, 277 USPQ 964, 966 (Fed. Cir. 1985). In view of this, although the process of producing a cutting edge with a portion having a reduced embrittlement or residual tensile stress in Williams may be different than the process in the instant application; however, the end product in Williams the same or a slightly different than the product as claimed in the instant applications. It should be noted that according to

MPEP § 2113, rejection of product-by-process claims under 35 U.S.C. 102 is proper because "...when the prior art discloses a product which reasonably appears to be either identical with or only slightly different from a product claimed in a product-by-process claim, a rejection based alternatively on alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972)." Therefore, the rejection is proper.

Appellant's argument that there is no suggestion to combine either Vankov or Williams with Hashimoto is not persuasive. For example, Vankov teaches a surface finishing process for a blade that produces a finished surface with less than 10Ra. However, the Vankov finishing process is not a centrifugal finishing process. However, it is within a skill of a person of ordinary skill in the art to use a different surface finishing process, such as taught in Hashimoto, to produce a finishing surface for the blade with less than 10 Ra. Because, the centrifugal surface finishing in Hashimoto is used for smoothing the surface of the blade and producing a finished surface for the blade less than 10 Ra as the surface finishing process in Vankov. Hashimoto teaches a vibratory finishing process which includes tumbling, rotating, spinning, or centrifugal processes, where one or more workpieces are placed in a container and abrasive medial or abrading elements displace portions of the workpiece during the vibratory finishing process. See Col. 1, lines 15-24 in Hashimoto.

Appellant's argument that the surface finishing process in Hashimoto is the same as the present invention is not persuasive. Appellant fails to indicate at least one difference between the claimed surface finishing apparatus in the instant application and the surface finishing apparatus in Hashimoto. Hashimoto teaches all the parts of the surface finishing apparatus as set forth in the claims. In addition, Hashimoto teaches a centrifugal surface finishing apparatus, which functions the same as the claimed centrifugal surface finishing apparatus. Appellant asserts that the abrading elements or media come into contact with surface of the blade in a different way than the present application. It should be noted that the way the abrading elements contact the surface of the blade has not been claimed in the instant application. In fact, the manner that the centrifugal surface finishing operates has not been claimed at all.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

(12) Conclusion

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Ghassem Alie/GA

July 27, 2007

Conferees:

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Boyer Ashley
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